



EVN**CPC**
PC DA NANG

CENTRAL POWER CORPORATION
DANANG POWER COMPANY, LTD.

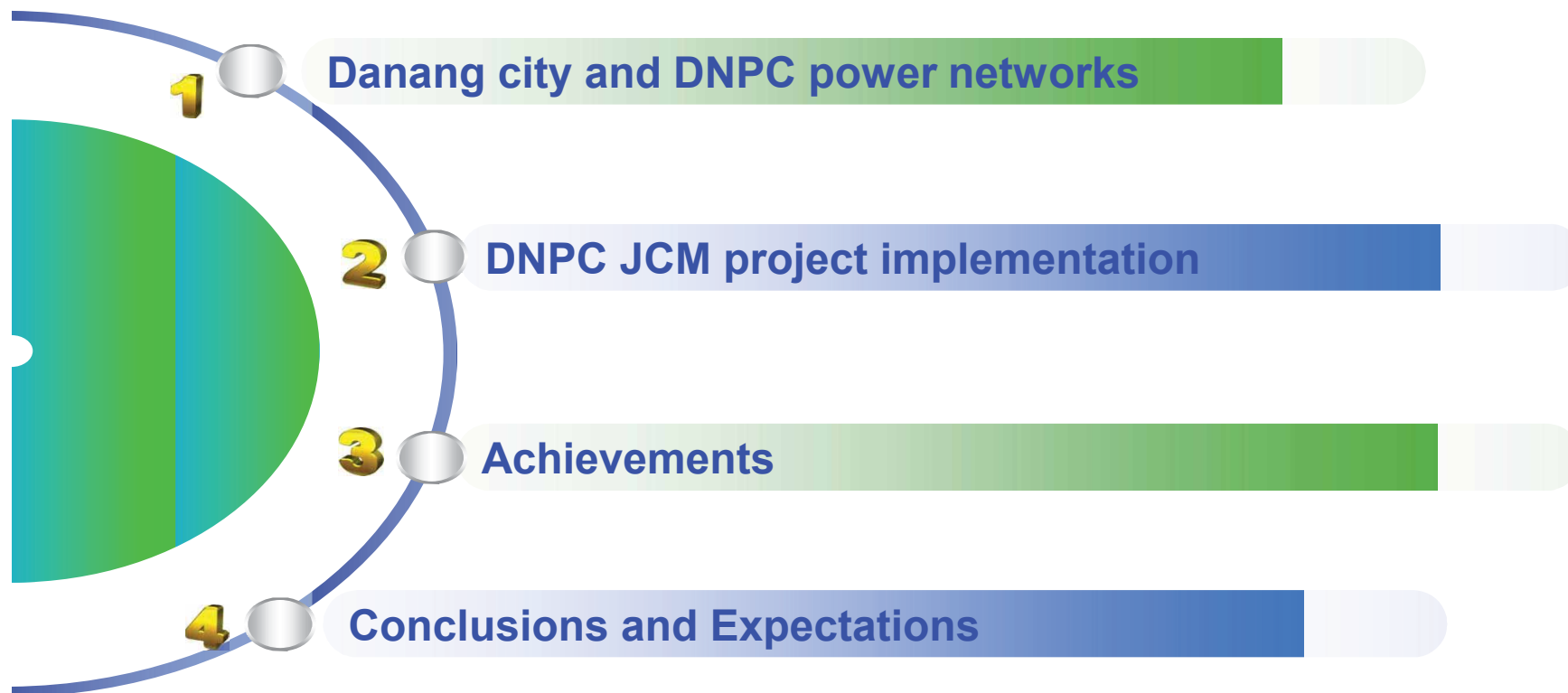
JCM PROJECT IN DANANG CITY, VIETNAM

IMPLEMENTATION, ACHIEVEMENTS AND

EXPECTATIONS

Danang, October 30th, 2017

CONTENT



1. DANANG CITY AND DNPC POWER NETWORKS

☞ Danang city:

Lat: 16°01'55"N; Long: 108°13'14"E	
Area	1.284,7 km ²
Population (2016):	
+ Total	1.046.200
+ Urban	915.000
+ Rural	131.200
Time zone	G (UTC+7)





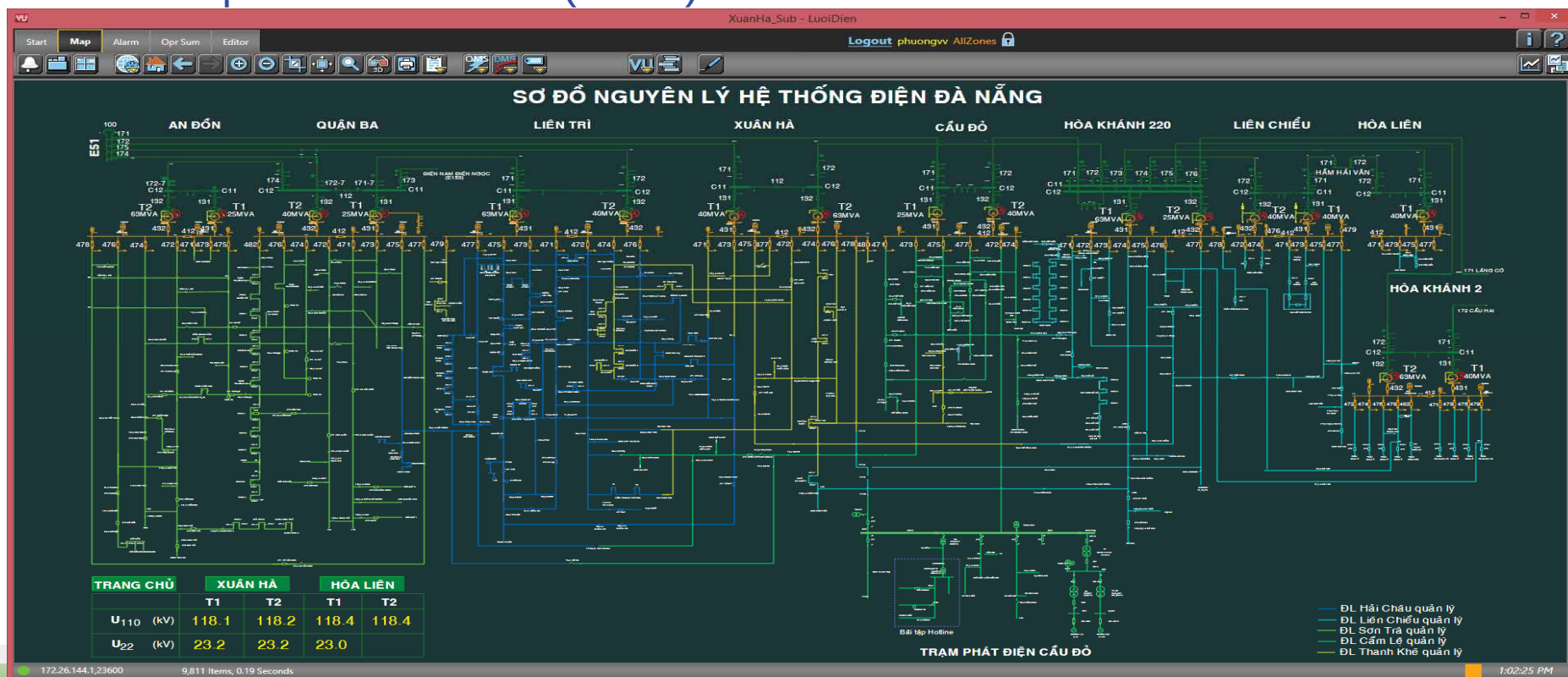
1. DANANG CITY AND DNPC POWER NETWORKS

☞ DNPC power networks (2016):



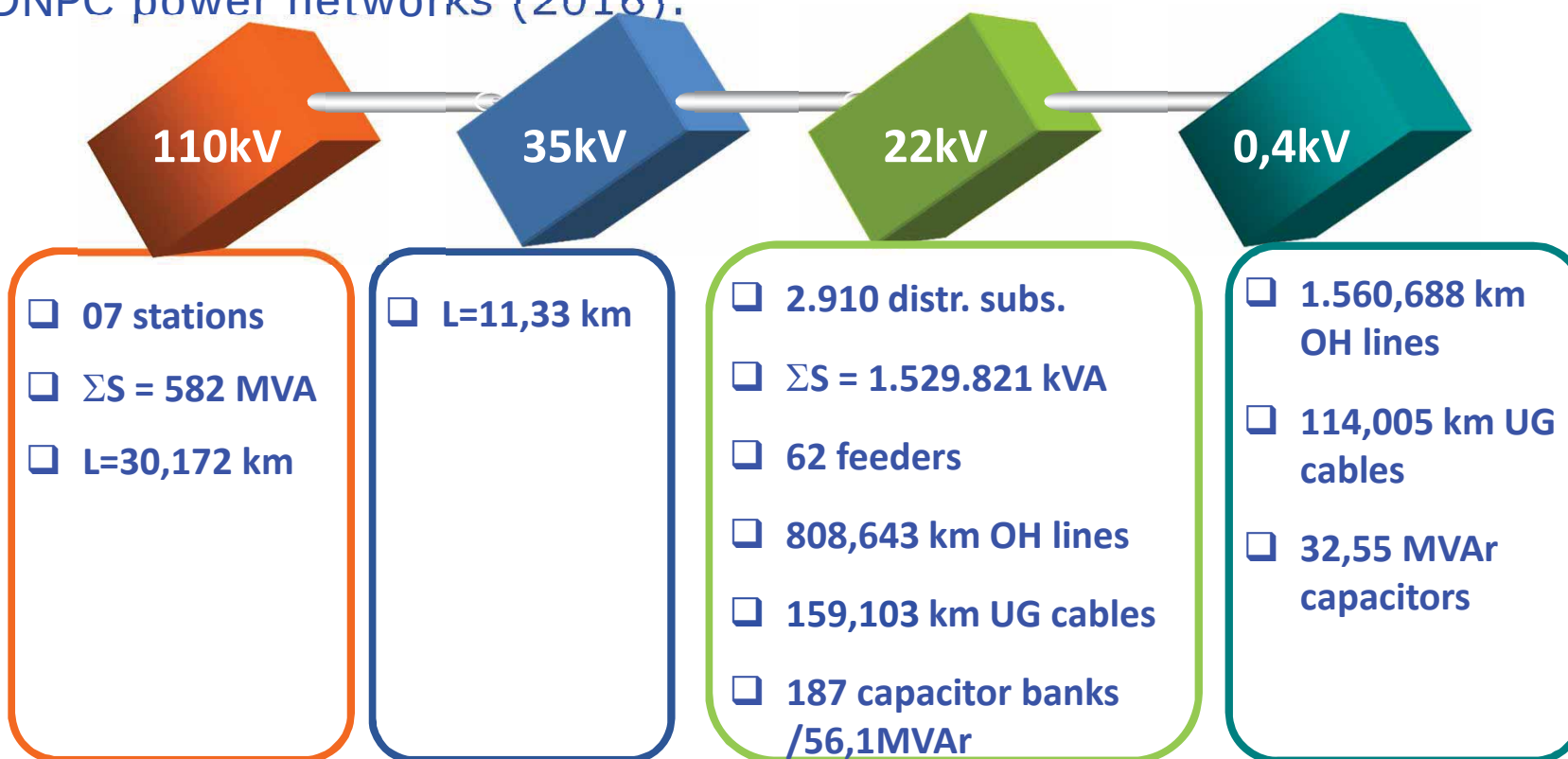
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☞ DNPC power networks (2016):



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1. DANANG CITY AND DNPC POWER NETWORKS

☞ DNPC power networks:

2016

- **SAIDI:** 576,64 min/cust.

- **SAIFI:** 3,95 times/cust.

460 MW

$P_{\max}$

2,525 bil. kWh

A_{sale}

3,22%

ΔA

1. DANANG CITY AND DNPC POWER NETWORKS

☞ DNPC power networks:

2020

686 MW

$P_{\max}$

- **SAIDI:** 257 min/cust.

- **SAIFI:** 3,83 times/cust.

3,435 bil. kWh

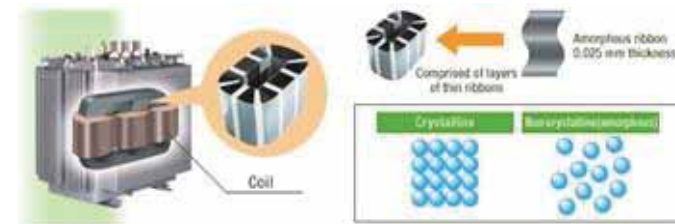
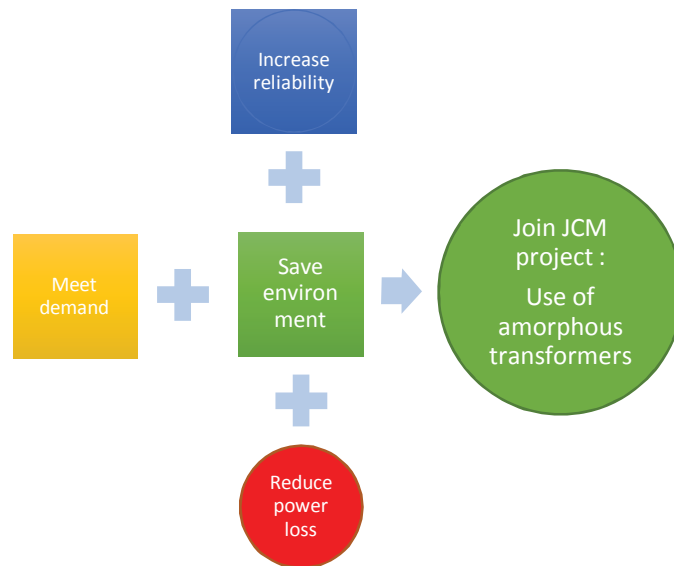
A_{sale}

0,1% reduction/year

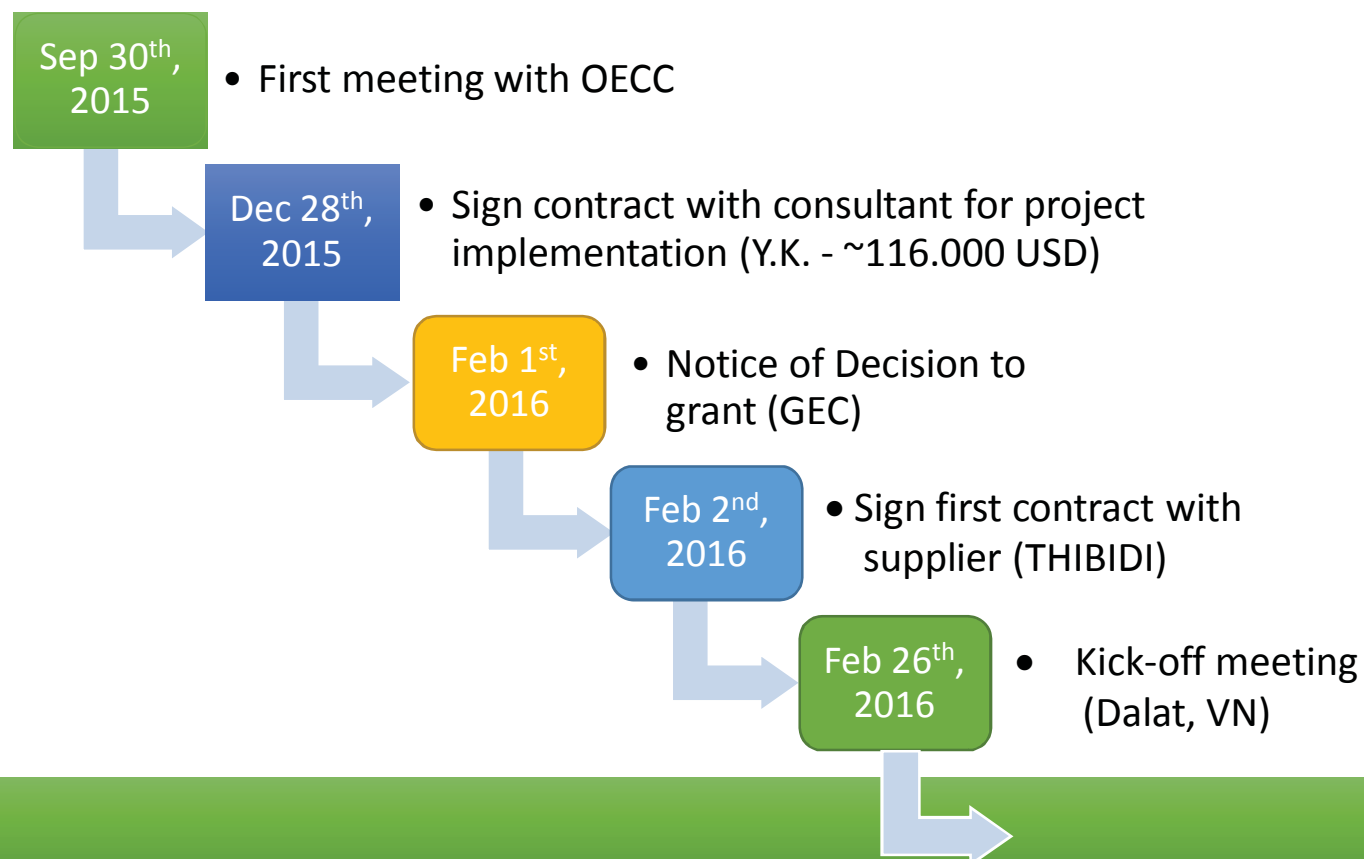
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1. DANANG CITY AND DNPC POWER NETWORKS

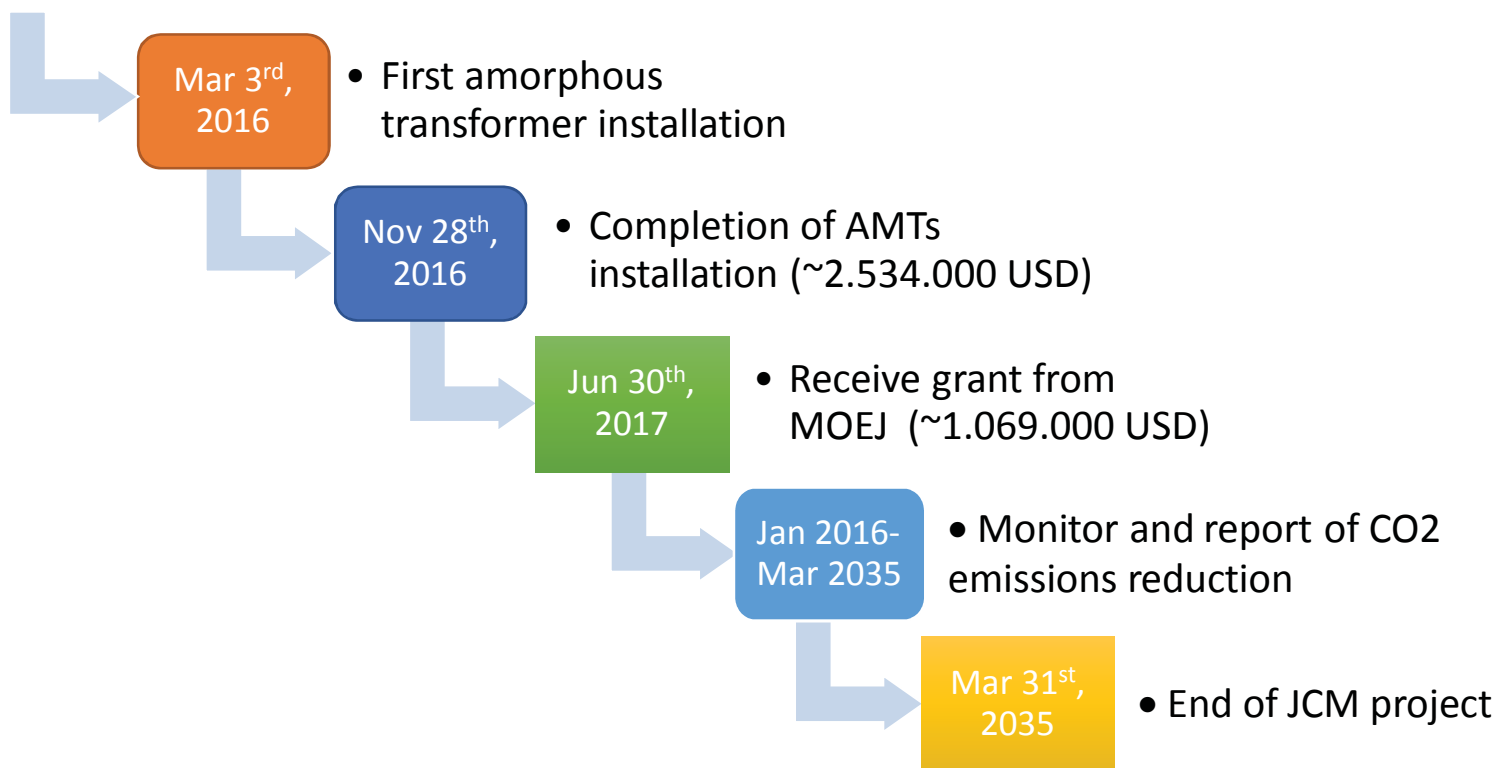
☞ DNPC power networks:



2. DNPC JCM PROJECT IMPLEMENTATION



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Transformers capacity (kVA)	Rated voltage (kV)	Quantity (unit)			
		Investment projects 2016	Overhaul projects 2016	Replacing transformers > 15 years	Total
100	22/0,4	5	10	19	34
160	22/0,4	0	2	9	11
180	22/0,4	0	6	0	6
250	22/0,4	33	22	21	76
320	22/0,4	0	6	0	6
400	22/0,4	17	40	45	102
560	22/0,4	0	2	0	2
630	22/0,4	6	3	36	45
Total		61	91	130	282 (~10%)

2. DNPC JCM PROJECT IMPLEMENTATION

Rated transf. capacity (kVA)	Quantity (unit)	Unit price (VND)	Total (excluding VAT) (VND)
100	34	102.816.000	3.495.744.000
160	11	118.167.300	1.299.840.300
180	6	132.947.100	797.682.600
250	76	169.802.100	12.904.959.600
320	6	204.918.300	1.229.509.800
400	102	239.343.300	24.413.016.600
560	2	274.311.900	548.623.800
630	45	283.653.900	12.764.425.500
Total	282		57.453.802.200

3. ACHIEVEMENTS

Power loss reduction (18 years)

- **27.473.375** kWh
- **38,029 bil. VND** (1 USD = 22.675 VND)
- 0,07%

Enhancement of reliability

- SAIDI: 477 min/cust.
- SAIFI: 2,99 times/cust.

Financial efficiency

- **24,233 bil. VND** (consultant fee: 2,635 bil. VND)
(1 JPY = 200 VND)

Environment save

- **453 tCO2/year**, **8.136 tCO2/project life**)



3. ACHIEVEMENTS

Rated capacity of Transf. (kVA)	Quantity (unit)	No load loss (W)		Energy loss in project life cycle (kWh)		Energy savings (kWh)
		Standard transf.	Low loss transf.	Standard transf.	Low loss transf.	
100	34	330	75	1.769.170	402.084	1.367.086
160	11	510	95	884.585	164.776	719.809
180	6	510	95	482.501	89.878	392.623
250	76	550	125	6.591.024	1.497.960	5.093.064
320	6	700	145	662.256	137.182	525.074
400	102	900	165	14.475.024	2.653.754	11.821.270
560	2	1000	220	315.360	69.379	245.981
630	45	1300	270	9.224.280	1.915.812	7.308.468
Total	282			34.404.199	6.930.824	<u>27.473.375</u>

3. ACHIEVEMENTS

1. Calculations for emission reductions			Fuel type	Value	Units	Parameter
	Emission reductions during the period of year y			<u>453</u>	tCO ₂ /y	ER _y
2. Selected default values, etc.						
	1	CO2 emmission factor for a Vietnamese regional grid system, displaced due to the project during a given time period	Electricity	0,7490	tCO ₂ /MWh	EF co ₂ ,grid,y
	2	Blackout rate (as a SAIDI)		1,87	%	Br
	3	Monitoring priod		8.760	Hr	MP
3. Calculations for reference emissions				778	tCO ₂ /y	RE _y
4. Project emissions during the period of year y				325	tCO ₂ /y	PE _y



4. CONCLUSIONS AND EXPECTATIONS

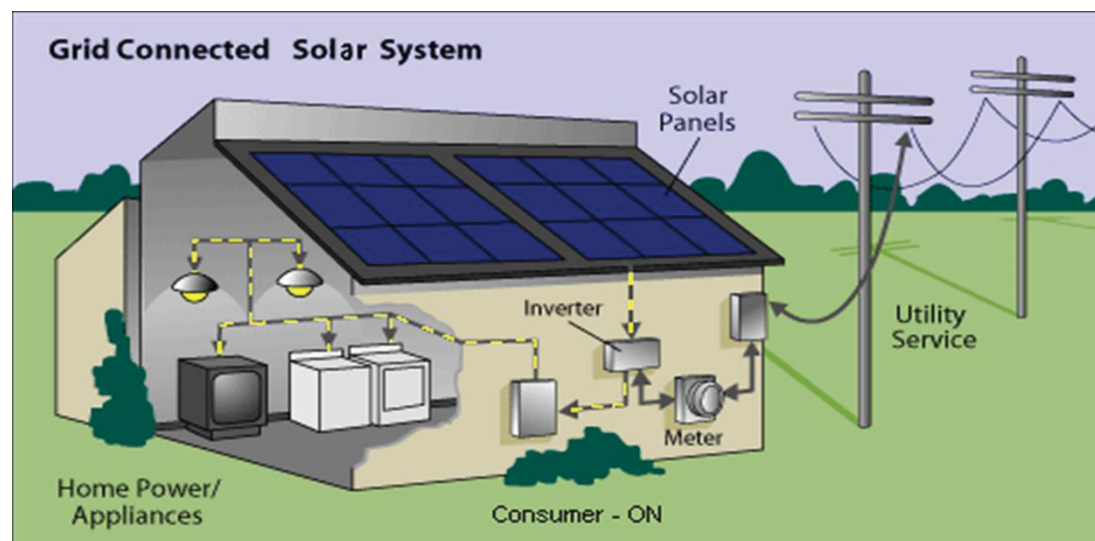
☞ Conclusions:

- ☞ The implementation of JCM project at Danang Power Company in 2016 is timely, effective and necessary:
 - ☞ To achieve the strategic objectives of DNPC.
 - ☞ To benefit the company, customers and global environment → enhancing the cooperative relations between Vietnam and Japan in combating global climate change.
 - ☞ Opportunity for DNPC to approach new and high efficient technologies from Japan.

4. CONCLUSIONS AND EXPECTATIONS

☞ Expectations:

- ☞ Invest more AMTs on DNPC network to achieve strategic objectives
- ☞ More collaboration between Japan & Vietnam/DNPC on environmental/high technology projects.





Thank you!

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